What is claimed is:

1. A phase angle detection system comprising:

rotary sensor comprising a magnet rotating about an axis and a plurality of magnetic field sensors angularly spaced about said axis;

a phase angle pulse modulation circuit and PWM generator circuit coupled to an input signal provided by each of said magnetic field sensors; and

a PWM to analog signal circuit coupled to an output of said modulator and PWM generator circuit.

2. The system of claim 1, wherein said rotary sensor comprises a first and a second magnetic field sensor spaced about 90 degrees apart about said axis.

3. The system of claim 1, wherein said phase angle pulse modulation circuit and PWM generator circuit comprises:

a quadrature oscillator adapted to generate a first signal equal to sin ωt and a second signal cos ωt;

an in phase multiplier adapted to multiply a sine input signal from said rotary sensor by said quadrature oscillator first signal;

a quadrature multiplier adapted to multiply a cosine input signal from said rotary sensor by a quadrature oscillator second signal; and

and adder circuit adapted to sum an output from said phase multiplier and an output from said quadrature multiplier.

4. A rotary sensor system comprising:

a permanent magnet coupled to a rotational input, said magnet rotatable about an axis; and

three magnetic sensors generally evenly spaced around said axis;

wherein said magnetic sensors are adapted to provide respective first, second and third outputs equal to A cos (θ), A cos (θ-120°), and A cos (θ-240°) in response to and angular displacement, θ, of said magnet.

5. The system of claim 4, further comprising a signal processor coupled to said sensor outputs, said processor comprising:

a first multiplying circuit coupled to said first output, multiplying said first output by cos ωt;

a second multiplying circuit coupled to said second output, multiplying said second output by cos (ωt-120°);

a third multiplying circuit coupled to said third output, multiplying said third output by cos (ωt-240°); and

an adding circuit for summing a product of said first, second, and third multiplying circuits.

6. A shaft coupling configuration for a rotary sensor system comprising:

a magnet/rotor assembly rotatably coupled an input shaft, said magnet rotor assembly comprising a Geneva cam feature comprising a first diameter about approximately 180° and a second diameter for approximately 180°;

a magnet tray disposed adjacent to said magnet/rotor assembly, said tray comprising at least one pin adapted to follow said Geneva cam and translate said tray relative to said magnet/rotor assembly in response to said first and second diameter of said Geneva cam.

7. The shaft coupling of claim 6, wherein said Geneva cam feature has an open transition between said first diameter and said second diameter, and wherein said magnet tray comprises at least a first pin adapted to follow said Geneva cam and a second pin and wherein rotation of said open transition across said at least first pin translates said magnet tray, whereby

said second pin follows said Geneva cam.